ABSTRACT

OF

METEOROLOGICAL OBSERVATIONS

MADE AT

GLENBURN, ROTHESAY,

(Latitude, 55° 49′ 50″ N,; Longitude, 5° 4′ 5″ W.; Height above Mean Sea Level, 76 feet),

FOR THE

YEAR ENDING 31st DECEMBER, 1907.

	BAROMETER.			AIR TEMPERATURE.						
		RANGE.		MEAN OF			ABSOLUTE MAXIMUM AND MINIMUM.			
	DAILY Mean of Readings at 9 a.m. and 9 p.m.	Highest Reading during the Month.	Lowest Reading during the Month.	Maximum = A.	Minimum = B.	Mean of A and B. Mean Temperature.	Maximum.	Day of the Month.	Minimum.	Day of the Month.
January	30·183	30·950	28·826	44·7	36·4	40·55	52	5th	25	24th
February	29·886	30·592	28·562	44·36	33·46	38·91	52	15th	26	1st and 23rd
March	29·984	30·440	28·894	49·55	36 9	43·27	61	29th	29	11th and 12th
April	29·756	30·280	29·128	50 1	38	44	61	2nd	30	30th
May	29·823	30·322	28·730	55·6	41·8	48 7	68	27th	37	2nd
June	29·697	30·122	29·408	57·2	45·1	51·1	64	17th	40	23rd
July	30·008	30·564	29·512	64·3	49·4	56·8	83	17th	42	2nd and 3rd
August	29·855	30 312	29·478	61·1	48 3	54·7	65	14th	39	2nd
September	30·075	30·508	29·392	61 6	49·4	55·5	70	10th	38	4th
October	29·598	30·130	28·906	53·5	44	48·7	60	1st, 4th, 5th, and 12th	33	26th and 27th
November	29·900	30·450	28·902	44·7	35·2	40	57	4th	29	29th
December	29·568	30·292	28·680	44·6	37·4	41	51	17th	30	15th
						46 94				

	Underground Temperature 4 feet depth. Mean of Daily Readings.	HYGROMETER.				RAIN, and other forms of precipitation.		WIND DIRECTIONS.								
		MEAN AT 9 A.M. AND 9 P.M.						NUMBER OF OBSERVATIONS AT 9 A.M. AND 9 P.M.								
		Dry Bulb.	Depression of Wet Bulb.	Vapour Pressure. Inches of Mercury.	Humidity per cent.	Number of Days.	Total Fall.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm or Variable.
January	...	40 56	1·9	·212	86	21	3·71	4	2	3	3	7	9	19	12	3
February	40·7	40·25	2·14	·209	84	18	3·57	6	0	1	1	4	6	25	8	5
March	41·9	42 15	1·95	·227	85	22	5 55	1	2	3	2	8	11	27	4	4
April	44 6	43·83	2·55	·230	80	17	3·42	2	5	16	3	4	3	15	7	5
May	47	48 14	2·71	266	81	20	5·32	3	6	23	2	8	2	8	5	5
June	49·9	50·58	2·55	·302	82	27	4·85	3	2	5	2	7	8	21	7	5
July	53·1	56·03	4 2	·335	74	15	3·54	1	4	17	0	1	1	18	10	10
August	54·7	53 93	2·37	·350	84	28	6·47	1	1	2	0	2	6	34	10	6
September	53·3	54·53	1·9	368	87	14	2·69	1	1	17	0	4	4	18	2	13
October	51·4	48·32	2 41	·281	85	24	6·32	2	6	17	4	6	2	10	3	12
November	47·1	42·96	1·93	·234	85	23	5·58	1	5	12	1	6	6	13	5	11
December	43·3	39·73	1·04	·224	92	25	7 56	1	6	17	3	4	12	12	1	6
						254	58·28	26	40	133	21	61	70	220	74	85

WEATHER NOTES.

By Andrew J. Hall, M.D.

This year again the thanks of the Society are due to Mr Penney for his kindness in providing us with his meteorological observations made at Glenburn Hydropathic.

The abstract here presented gives the more important facts to be deduced from these observations in the same form as in the two preceding years, and thus serves to maintain the continuity of the long series of reports made by Mr Kay.

It may be thought that we hardly require the systematic statements to assure us that on the whole the weather of 1907 was disappointing. Throughout its course, everyone realised that the summer was dull and wet. The figures, however, show that matters might have been much worse.

The rainfall for the year was 58·28 inches. This is about 10 inches above the average for 100 years, which is 48·36 inches. The amount of rain which fell in the four months, January, February, July and September, was in each case slightly below the average. The other eight months each show decidedly above the average. Rain fell on 254 days in the year.

In the appendix to Mr Kay's report, published in 1900, the average mean temperature at Rothesay during 42 years is stated to be 47·6. The mean temperature for the year 1907 is 46·94.

	42 Years' Average.	Year 1907.
January, - - -	38·6	40·55
February, - - -	39·1	38·91
March, - - -	40·7	43·27
April, - - - -	45·6	44
May, - - - -	50·7	48·7
June, - - - -	56·3	51·1
July, - - - -	58·3	56·8
August, - - -	57·7	54·7
September, - - -	53·9	55·5
October, - - -	47·4	48·7
November, - - -	42·3	40
December - - -	40·1	41

When we place the average of 42 years monthly mean temperature side by side with the monthly mean temperature for 1907 we see that the comparative lowness of the annual mean temperature of last year is due to a shortage of *summer* heat. The five months, April to August, are all lower than the average, while five of the other seven are above it. The monthly figures of 1907 seem to give some justification for the oft-repeated statement that our seasons are losing their individual characteristics, and are growing liker to each other.

Perhaps, so far as this year is concerned, it is just as well that Mr Penney did not have a sunshine recorder among his instruments. Without the aid of any such instrument we have all observed that the year was a very dull one—that its sunshine was much below the average. This, taken with the other fact that our mean temperature for the year was only a little below the average (·66 of a degree), serves to remind us that in this interesting climate of ours we do not depend altogether on direct sunshine for the warmth that surrounds us. It is of course true that all the heat we get does come

from the sun, but much of that which comes to this country does not come at first hand. It has already done work away down in the lower latitudes and reaches us in a roundabout way.

For many years it was believed that the Gulf Stream was the great source of our supplemented heat, but of late this theory has been hopelessly discredited. The influence of this "river in the ocean" has been found to be utterly insufficient.

The more modern explanation of the abnormal mildness of the climate of Britain and Western Europe is interesting in the highest degree. Almost the whole credit is now given to the south-west winds. These winds bring up from sub-tropical latitudes an enormous amount of aqueous vapour, and it is the latent heat, which is set free by the condensation of this vapour into rain, that is the great cause of the geniality of our climate.

To convince ourselves of the adequacy of this explanation let us recall some facts In elementary physics.

We are all familiar in daily life with the cooling effect produced by the melting of ice and by the evaporation of water or other liquid. The change of form from solid to liquid or from liquid to gas is accompanied by an apparent loss of heat. There is a lowering of the temperature of the surrounding medium without a corresponding increase of temperature in the water itself. In reality the heat is not lost. It is merely locked up and ready to be given out again into the air when from any cause the water changes from a less dense to a more dense form ; that is, from water to ice or from vapour to water.

This, then, is what takes place in nature's great laboratory. Away down in the region where the south-west anti-trade wind takes origin, enormous quantities of water are evaporated from the surface of the Atlantic Ocean by means of the sun's rays. As a result of this process much heat is

taken from the atmosphere of that region and disappears, being locked up in the watery vapour. There it remains in its latent condition until the south-west wind, carrying it, strikes the shores of Britain, when the vapour is again condensed into rain and the heat is once more set free. When we consider that 100 units of heat bring a given quantity of water at zero to 100° centigrade, and yet it takes 537 units to transform the same quantity of boiling water into steam without any rise of temperature, we may get a faint idea of how great a quantity of heat may be set at liberty when watery vapour is condensed into rain.

In the *Glasgow Herald* of 7th March, 1908. there is an article, "The Gulf Stream Myth," by Professor J. W. Gregory, which will well repay perusal.

GLACIAL PHENOMENA IN BUTE.

By W. J. Millar.

[Read 10th December, 1907.]

The town of Rothesay occupies, geologically, a rather interesting position, as it is situated over the junction of the schistose rocks of the Highlands and the sandstones of the Lowlands. This line of junction lies in a north-easterly direction, passing close to Helensburgh, Callander and Crieff, thence onwards until it reaches the east coast about Stonehaven, and it passes through Bute by Loch Fad to the west side. On geological maps, this line of junction is a well-marked feature. Geologists call this a line of fault, and, with a somewhat parallel one, crossing from Girvan to Dunbar, divides the Highlands from the Southern Uplands by the Lowland districts, contained within these two lines; in mining terms this peculiar condition indicates a down throw of the rocks in this area.

Now, we are all familiar with the very different kinds of rock on the East and West Bays. On the east side we have the Red sandstones and allied conglomerates extending South to Kilchattan, where some fine specimens of Columnar Sandstone are found close to the shore, whilst on the West Bay we see a greyish green Schistose rock with veins of quartz, which passes into Slate to the north of Port-Bannatyne, afterwards becoming coarsely Schistose in character, and allied to the Metamorphic rocks on the mainland to the north. Throughout these rocks, many trap dykes find their way, some running north and south and others east and west. Besides these well-marked features we have strewed along our shores, and extending upwards and over the country southwards, many large stones or boulders; these are